

## **Intro**

This is meant to be a guide on how to get up and running with a good quality stream from older generation video game consoles with a (CRT) TV setup. I wanted to share my experience of testing and troubleshooting to get better quality video and audio on my stream. I only include items that I know are good quality, but I don't know about every option out there.

This is not the cheapest method to get streaming, but it's not crazy expensive either (see my [RGB](#) guide for that). It is just kind of a collection of knowledge that I've used to help friends set up their streams. Also, the Software Setup section is still useful even if you don't use this equipment. If you are interested in using MPC-HC as an AmarecTV replacement, check out the [RGB](#) (and advanced S-Video) guide.

**November 2018 Note:** This guide, while still useful in selecting hardware for capture is very outdated (2015) when it comes to the Software setup. It was created before OBS Studio existed and AmarecTV was still the best solution for capturing video. The principles still stand for a clean software capture of video, but if you don't need AmarecTV for RAW video recording, I recommend using just OBS Studio. The one thing I will mention is **NEVER** use your mouse to stretch objects in OBS Studio, use the built in Filters to set exact sizes.

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## **Equipment - S-Video/Composite Setup**

### **S-Video and Composite Cables**

#### **1. SNES/N64/Gamecube S-Video Cables**

- a. **SHVC-009** - The official Nintendo S-Video cable, released only in Japan. This is the cable to get. <http://ebay.to/1KetC4b>
- b. **Monster Cable** - This is what I have, it is 10 ft long and very rugged, but the prices have shot up recently. I think I found mine for around \$30 <http://ebay.to/1e711Bn>
- c. **Cheap S-Video** (or S-Video + composite combo cable) Usually \$8-10 on Amazon, I **DO NOT** recommend getting these as they are generally a waste of money and it's basically a crap shoot whether you get a decent one or not (the S-Video only ones seem to have a better chance). The result of these cables are what we like to call a 'Jeans Filter' seen here <http://i.imgur.com/G2etFRQ.png> Note the cable on the left is a bit better.

#### **2. NES (Toaster only)**

- a. The NES doesn't support s-video so you will just need a basic Composite+RCA cable that you can find on Amazon. <http://amzn.to/1ZJID47>

- b. The NES only outputs Mono audio, so you should also pick up a basic audio splitter, so you can have sound go to both left and right channels of your capture card. <http://amzn.to/1P9Vojh>

### 3. Genesis

- a. The Genesis doesn't support s-video, so you will need to pick up a composite cable that matches what you need for your specific Genesis model number.
- b. In the case of a Genesis model 1, it actually supports stereo sound only out of the front headphones port, so you can get a cable that you can split it into Left/Right channels. <http://amzn.to/1ZJIKww>

### 4. Playstation 1+2

- a. You can buy the official Sony s-video cable for the PS3, and it is backwards compatible with both PS1 and PS2. <http://amzn.to/1MA1nko>

## S-Video and Composite Capture Devices

1. **GV-USB2** - <http://amzn.to/1MA1pJ7> Made in Japan. This is what I have. It is the best capture device for s-video and composite capture.
2. **Dazzle DVC-100/101** - I am including this here because I still see it recommended by other streamers. I **DO NOT** recommend this. Black colors show up as gray, reds bleed into other colors, and they have a decent chance of breaking (the one I owned did, intermittent USB connection). Plus, it is more expensive than the GV-USB2.

## S-Video+RCA Powered Splitters

A powered splitter is the only way to prevent signal loss to both your TV and capture card. Unfortunately as s-video becomes a thing of the past, these become harder to find. Also, note that these splitters do not convert signals between s-video and composite (and vice-versa).

1. **Radio Shack 1500320** - <http://amzn.to/2zIqEaj> People kept asking me about this splitter, so I decided to drop the \$20 to test it for myself. The image quality is comparable to all the options below, plus it is much cheaper than all of them, so I see no reason to not get this. It also has the added bonus of converting Composite to S-Video AND S-Video to Composite.
2. **Cable Electronics LABS AV 400SV** - <http://amzn.to/1KfOHwI> This is what I have. They are hard to find recently. Here is the manufacturer website, seems to be the only place you can find these now. <http://bit.ly/1ILKtH2>
3. **CablesOnline SB-SCA4** - <http://ebay.to/1W403HY> Another option, similar to the CE LABS splitter.
4. **Shinybow SB-3716** - <http://bit.ly/1hlyjyP> Also good quality, and a nice compact design, but a bit harder to find. However, it doesn't split Composite video.
5. **Shinybow SB-5430** (Switch and Splitter) - <http://bit.ly/1OTquuv>  
<http://amzn.to/1ZJJ0eQ> I bought one of these later on, so I could input multiple systems into the switch without having to move cables around. This also works as a

splitter with 2 output ports. It's worth the money if you want something with the added features.

## **S-Video, Composite, and Audio Cables**

You will need these to route between your splitter, capture card, and TV.

1. **S-Video Cables** - You will need 2 of these. Get whatever length you need, most are good quality, but watch out for cheaper cables (usually really long lengths).  
<http://amzn.to/2yVNhop>
  - a. I don't have one of these myself, but here is an S-Video+RCA combo cable that people seem to like: <http://amzn.to/2dcXFju>
2. **Composite Cables** - (2) You might need these if you are using composite for the NES or Genesis. I ended up getting combo Composite+RCA cables.  
<http://amzn.to/1RpQEcV>
3. **RCA Audio Cables** - If you didn't get the combo Composite+RCA cables, you will need 2 of these. Get whatever length you need. A lot of times people have these sitting in an old box of cables somewhere.

## **Hardware Setup**

This should be pretty self-explanatory, plug your game system into your splitter input, then your two sets of cables from the splitter outputs into your TV and capture card. (insert picture soon?)

## **Software**

1. **GV-USB2 Drivers** - Use these updated drivers instead of the ones that come with it, I've heard reports of the older drivers causing blue screens. The serial number is on the back of your device. <http://www.iodata.jp/lib/product/g/3576.htm>
2. **AmarecTV v3.10** - (or the latest version) This program will be for displaying and formatting the video and audio that is captured from your card. Make sure you do not get the version 2.31 of this, it has a weird issue with sound warping. Just google search for it. When you find it, it will look like it is in Japanese only, but it is English.
3. **LiveSplit** - <http://livesplit.org/downloads> I still miss a few of the features that Llanfair provided, but this is the best split program hands down. Lots of customization is possible.
4. **Open Broadcasting Software** - <https://obsproject.com> Overall, OBS is a really great free streaming program. I recommend this highly over paying for Xsplit. This guide was written before OBS Studio was released, so expect to see 'The Classic' version instructions below. However, OBS Studio is now to the point where I've started using it myself, so I would recommend using that. Most of the setup guide

below still works with OBS Studio, but expect some differences until I get time to update this guide.

## **Software Setup**

### **AmarecTV**

1. There is no need to install anything with AmarecTV, just unzip it into a directory and run AmarecTV.exe
2. **Important note** for people whose Windows settings display numbers as '1,99' instead of '1.99' AmarecTV will give you an error when you try to set the resolution.
  - a. The fix is to switch your Windows settings to display '.' instead of ',' Go to Control Panel -> Region and Languages -> Additional Settings -> the top option change the ',' to '.'
3. Open up AmarecTV - right-click the main window -> Config
  - a. Graph 1 Tab should look like this <http://i.imgur.com/wP4hYIC.png>
    - i. To adjust Brightness/Contrast/Saturation, click on 'Device Setting', then 'Video Proc Amp' tab. To make these adjustments, I find a screenshot of another stream that you think looks good to compare to and make adjustments. Don't use your TV as a reference.
  - b. Graph 2 Tab should look like this (for 240p sources NES/SNES/N64/Genesis/etc... ) <http://i.imgur.com/ShESKFg.png>
    - i. In general, use "for Role-playing Game" for newer systems (PSX, Gamecube, etc). However, this doesn't always hold 100% true as it can also depend on the game, so you can look at the video to see what looks better.
  - c. Hotkey Tab - uncheck 'Use Hotkeys' (trust me, you want to do this)
  - d. Hit 'OK' - The video should now be showing, and audio playing.
4. Right-click the main window and check 'Always On Top' - so that other windows won't go on top of your video.
5. Right-click again and select '100%' - This will make sure the video is displayed 1 for 1 as it is captured from your card. Also, your video will look a little wide compared to your TV, this is ok and will be fixed later.

### **OBS**

1. Settings -> **Encoding**
  - a. As far as bitrate, I personally use 1250kbps for video and 160kbps AAC for audio, there is some advanced stuff to tweak here, but this should be a good starting point. You might consider increasing the bitrate a bit if you play a very fast motion game, or decreasing if your connection is slower. Also check 'Use CBR'. <http://i.imgur.com/vBwF2m8.png>
2. Settings -> **Broadcast Settings**
  - a. Pretty straightforward stuff here, setup your streaming service and stream key, then select whether or not you want to save the video file locally and

keep recording if the live stream drops. I recommend recording locally in case your internet drops out or the streaming server has issues. Just make sure that you have enough space on your hard drive.

<http://i.imgur.com/CeelTDF.png>

3. Settings -> **Video**

- a. I use 796x448 for the stream size (some people use 792x448). The key here is the 448 height, as it matches exactly what a NES/SNES/etc... outputs (after deinterlacing). You might consider a bit larger size if you want to fit more onto the stream (i.e. webcam, border, stream info), something like 852x480, but ideally you do not want to stretch the video inside OBS, as it blurs the picture. You might also consider using 852x480 if you are capturing newer standard definition consoles (Gamecube, Wii, etc...) as they display in 480 height, though on a CRT you will still only see 448. See 'Capturing the **Game Video**' section for more details on this.
- b. Set FPS to 60 fps, many older games run at 60fps (NES, SNES, Genesis, etc..) and were designed to be viewed this way. Also set OBS to disable Windows Aero (for Windows 7 and earlier) <http://i.imgur.com/ue2ydox.png>

4. Settings -> **Advanced**

- a. Set 'Process Priority Class' to 'Above Normal' This is so OBS will have a higher priority over other programs while you are streaming.
- b. This part of the Advanced section is Optional, mainly for higher end PCs and people who know what they are doing, most people don't need to bother with this.
  - i. To improve stream quality a bit, you can play around with the 'x264 CPU Preset'. I personally use 'medium', if you change this, there are two things to keep in mind. One is that increasing this will have diminishing returns on quality improvements. Two, you need to keep an eye on your CPU after you increase this, to make sure it isn't being overused by OBS.
  - ii. Also to improve the quality, you can try changing the 'Encoding Profile' to 'high'. I currently use this, and I think it has a better effect than changing the x264 CPU Preset. Again, you need to keep an eye on CPU usage if you change this. Also, if you change this, there are some older mobile devices out there that don't support decoding the High Profile, so they might not be able to watch your stream.
- c. If you ever have trouble with the game audio desyncing with the video, you can try checking 'Force desktop audio to use video timestamps as a base for audio time' to see if it fixes the problem.

5. Capturing the **Game Video**

- a. Use Window Capture to capture the open AmarecTV window. I like to set this up as a Global Source so I can easily add it to other scenes.
- b. Turn on 'Sub Region' - Cropping to the proper pixels here is very important, you can start by using the mouse method to get most of the black cropped out, but you should finish by incrementing one pixel at a time in the number boxes to remove all the black borders. If done correctly, the height should be exactly 448 pixels high (the bottom right box), which matches your stream height. It will look something similar to this:

<http://i.imgur.com/vmVQdvs.png>

- i. If you switch around to different game systems SNES to Genesis to N64, you will find that the same cropping won't work for all of them. What I do is add a new Window Capture for each system I use and crop for that system.
    - ii. Also, some systems (notably N64) have more pixels than the standard 448 height (and width), even though there are more pixels, the game was designed for a TV that can only display 448 tall images, so I still crop it to 448. It is up to you if you want to include the extra edges on your stream or not. If you do, you'll have to increase your main resolution in OBS to account for this.
  - c. You will notice that your game window in OBS is still too wide, this is where you fix it. Turn on Edit Scene Mode, select the video feed, hold Shift then mouse click the left or right edge of the game window. I set the width to 586 pixels, as this gives a pixel aspect ratio close to 8:7, which is close to how the game is displayed on a TV. To line up exactly 586 pixels, I place livesplit in the scene to take up exactly the remaining width ( $796-586=210\text{px}$ ) of the layout, then just line up to the edge. Another option is to eyeball it to the correct width, and use your TV as a reference. Other things to consider for width are how much room you want for splits on the side.
6. Capturing the **Game Audio**
- a. Standard Setup - Audio through AmarecTV
    - i. With the standard setup, the audio should be coming out of AmarecTV and going through to your desktop sound and to your stream.
  - b. Advanced Setup - Audio through OBS Directshow Audio Source Plugin <http://bit.ly/1fHI4q3>
    - i. This plugin will allow you to send the game audio directly to your stream, AND gives the choice of hearing it or not on your desktop audio. Most people use this to stream game audio to the stream only, and listen to their own music that the stream viewer won't hear.
    - ii. To install this, you will need to extract both the .dll and folder into the plugins directory of the appropriate OBS installation (32 or 64 bit) If you installed it correctly, it should show up in the list when you click 'Plugins' in OBS.
    - iii. If you had previously had Audio going through AmarecTV, you will need to disable the sound there. It is in 'Config->Graph 1->Audio Capture Device'. Set this to '(not used)'
    - iv. Now you can add the DirectShow Audio Source to your OBS scene. It will look like this: <http://i.imgur.com/Fd9yfbL.png>
    - v. After this, you can check to see if your game audio is synched to the video on your stream. It was fine for me, but some people have to play around with setting the 'Audio Time Offset'.
7. Capturing **Livesplit**
- a. The basics here are to make sure you only change the size of the Livesplit window itself, then re-add the Window Capture in OBS. Do NOT resize it in OBS.
  - b. Also, I recommend using a pixel-based font for Livesplit. Pixel fonts upscale very nicely within flash, making the splits easy to read for the end viewer. The cool thing here is that all older video game fonts are pixel-based, so see if you

can find the font for your game of choice. You might have to do some size adjustments (both font and window size) so the font shows up clearly in Livesplit. When you use a pixel font, make sure that you uncheck 'Anti-Aliasing' in the Layout Settings.

## **Other Stuff**

### **RGB Streaming**

[RGB Setup Guide](#) (work in progress) I started putting together a guide for my RGB console streaming setup, which is what I currently use, except for Chrono Cross streams, which I still have to use s-video because of 240p/480i switching in-game.

### **Resources**

[Chasing Pixels Website](#) - This is an invaluable resource about gaming on CRTs, LCDs, Capturing, RGB, Post-processing, and everything in-between. If you want to nerd out on this stuff, or want to learn about how to take things to the next level, this is the place to go.

[RetroRGB](#) - A great site about how to get the best possible quality (RGB) out of every gaming system. I used this site to figure out how to mod my NES/N64 and pick out a 1Chip SNES.

**\*\*Disclaimer:** The amazon links above are amazon associate links, so if you purchase after clicking on them, I get a small percentage from the purchase (it doesn't cost you any more).

You can also use this link and purchase anything (within 24 hours of clicking) to help out: <http://www.amazon.com/?tag=evilstre-20> It is basically free money Amazon is giving out, as long as you use someone's referral link, so there is no reason not to, even if it is not mine.

Thanks for the supporting the work that I put into this guide!